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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/971,704	10/09/2001	Tatsuya Kato	214861US2	4231
22850	7590	11/15/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TRAN, THANG V	
			ART UNIT	PAPER NUMBER
			2653	
DATE MAILED: 11/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/971,704	KATO ET AL.	
	Examiner	Art Unit	
	Thang V. Tran	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8 and 9 is/are rejected.
- 7) ☒ Claim(s) 4 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The amendment dated 09/07/05 has been considered with the following results;

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Kashiwagi (US 6,175,548).

Regarding claim 1, see Figs. 1-7 and an abstract of Kashiwagi which show an optical recording medium (see Fig. 1) having a grooved light-transparent substrate (12) and a phase change recording layer (11), and information (pit P) is recoded thereon by irradiating a laser beam thereto through an objective lens in an optical system (see Fig. 7), wherein the recording is carried out in a groove recording mode, in which only groove serve as a recording track (see Fig. 5 or 6C) under the conditions: $0.48 \leq P_T/(\lambda NA) \leq 0.74$ and $P_T \leq 0.50 \mu\text{m}$ provided that the laser beam used for recording has a wavelength λ , the objective lens has a numerical aperture NA, and recording tracks are arranged at a pitch P_T (see respective disclosure of Fig. 1, 5 and 6 Kashiwagi which disclose the use of a laser beam used for recording has a wavelength of from 380nm to 450nm; an objective lens has a numerical aperture NA of at least 0.76; and a track pitch P_T of from $0.27\mu\text{m}$ to $0.404\mu\text{m}$. According to these provided data, the recording

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pit P recorded on the groove (land) under the condition that falls within the range $0.48 \leq P_T/(\lambda NA) \leq 0.74$ as recited in the instant claim claimed invention. Note: the land in the recording medium of Kasiwagi is interpreted as a groove recited in the claimed invention.

Regarding claim 5, see the rejection applied to claim 1 above.

Regarding claims 8 and 9, see the recording shown in Fig. 1 in which recording is carried out by the method of claim 1 and 5 respectively.

3. Claims 5, 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikukawa et al (US 6,125,101) cited by Applicant.

Regarding claim 5, see Figs. 1 and 2 of Kikukawa et al. which discloses an optical recording medium having a grooved light-transparent substrate and a phase change recording layer (see column 6, lines 12-41) and information (see Fig. 1) is recoded thereon by irradiating a laser beam (see column 5, lines 63-66) thereto through an objective lens in an optical system (see column 6, lines 1-5), wherein the recording is carried out in a groove recording mode in which only groove serve as a recording track (see column 6, line 49-50) under the conditions: $0.48 \leq P_T/(\lambda NA) \leq 0.74$ and $P_T \leq 0.50 \mu\text{m}$ provided that the laser beam used for recording has a wavelength λ , the objective lens has a numerical aperture NA, and recording tracks are arranged at a pitch P_T (see column 5, lines 63-66 of Kikukawa which teaches the use of a laser beam used for recording has a wavelength of 680nm; see column 6, lines 1-5 of Kikukawa which teaches the use of an objective lens has a numerical aperture NA of 0.6; and see column 6, lines 51 of Kikukawa which teaches the use of a track pitch P_T of $0.74\mu\text{m}$). Based on these given data, Kikukawa et al. teaches the use of the recording in the grooves under the condition

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$P_T/(\lambda NA) = 0.655$ which is within the range $0.48 \leq P_T/(\lambda NA) \leq 0.74$ as recited in the instant claim claimed invention (column 5, line 58 to column 6, line 51 for further details).

Regarding claim 6, see Fig. 1 which shows the recording forms a recorded mark having at least one end extending out of the groove.

Regarding claim 9, see the recording shown in Fig. 1 in which recording is carried out by the method of claim 5.

4. Claims 1, 2, 5, 8 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Uno et al (US 6,449,239).

Regarding claim 1, see column 17, lines 50-59 of Uno et al which discloses an optical recording medium (see Fig. 1) having a grooved light-transparent substrate (1), a phase change recording layer (4), and information (mark) is recoded thereon by irradiating a laser beam thereto through an objective lens in an optical system, wherein the recording is carried out in a groove recording mode in which only groove serve as a recording track (when recording on groove) under the conditions: $0.48 \leq P_T/(\lambda NA) \leq 0.74$ and $P_T \leq 0.50 \mu\text{m}$ provided that the laser beam used for recording has a wavelength λ , the objective lens has a numerical aperture NA, and recording tracks are arranged at a pitch P_T (see column 17, lines 50-59 of Uno et al which discloses the use of a laser beam used for recording has a wavelength of 405; an objective lens has a numerical aperture NA of 0.65; and a track pitch of $0.39 \mu\text{m}$). Based on these given data, Uno et al does teach the use of the recording mark in the groove under the condition $P_T/(\lambda NA) = 0.62$ which falls within the range $0.48 \leq P_T/(\lambda NA) \leq 0.74$ as recited in the instant claim claimed invention. (Note: grooves serve as a recording track only when recording is performed on the grooves).

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Regarding claim 2, see column 17, line 56-57.

Regarding claim 5, see the rejection applied to claim 1 above.

Regarding claims 8 and 9, see the recording shown in Fig. 1 in which recording is carried out by the method of claim 1 and 5 respectively.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Uno et al (US 6,449,239) or Kashiwagi (US 6,175,548) in view of Kikukawa et al (US 6,125,101) cited by Applicant.

Uno et al and Kashiwagi, each teach all the features of the instant claimed invention (see the rejections above) except for the recording of mark having at least one end extending out of the groove as further recited in claim 3. Kikukawa et al., according to 1, teaches the use of forming mark on a groove having at least one end extending out of the groove in order to control a degree of modulation and minimize the jitter during high-density recording with easier. It would have been obvious to one of ordinary skill in the art at the time the invention was made to record or form data mark or pit on a groove having at least one end extending out of the groove on the recording medium of either Uno et al or Kashiwagi based on the teach of Kikukawa et al

in order to control a degree of modulation and minimize the jitter easier during high-density recording with easier as suggested by Kikukawa et al.

Allowable Subject Matter

7. Claims 4 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. In response to Applicant's arguments with respect to Kashiwagi (US 6,175,548), Applicant should note that claimed invention does not recite whether a groove is located relatively closer to a laser incident surface or not; therefore, the limitation related to structure of the groove cannot be read into the claimed for the purpose of avoiding the prior art. Nevertheless, Applicant's attention is drawn to a land on the recording medium of Kashiwagi which is interpreted as a groove as recited in the claimed invention. Also, Applicant should note that in Kashiwagi, the pit P can be recorded on a groove only or on both groove and land (see Fig. 4A, 5, 6A and 6C) and when pit P is recording on the groove or land, that only groove or land serves as a recording track as recited in the claimed invention. Further, for limitation of the track pitch P_T as recited in the claimed invention, see column 1, lines 44-45 of Kashiwagi as example

In response to Applicant's arguments with respect to Kashiwagi (US 6,125,101), Applicant should note that example 1 is an example of the recording medium described in column 5, line 58 to column 6, line 5. Accordingly, the details including a track pitch $G_w + L_w$

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provided in the example 1 must be related to the above described recording medium. Thereby, one of ordinary skill in the art would immediately understand from the description in Kikukawa at column 5, line 58 to column 6, line 51 that $P_T/(NNA) = 0.65$ which falls in the range as recited in the claimed invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thang V. Tran whose telephone number is (571) 272-7595. The examiner can normally be reached on M-F 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thang V. Tran
Primary Examiner
Art Unit 2653